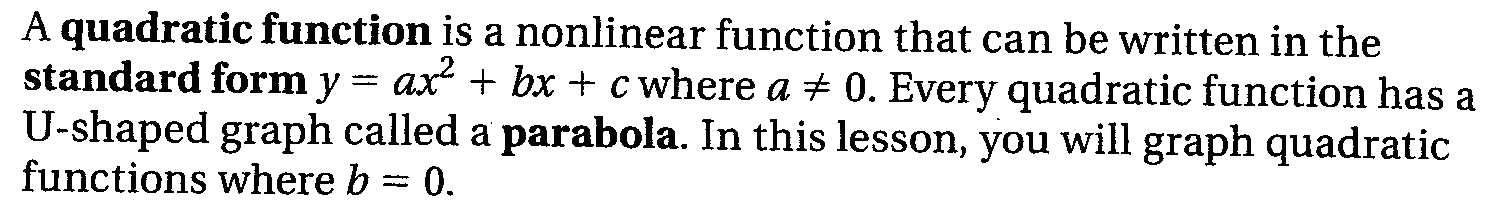
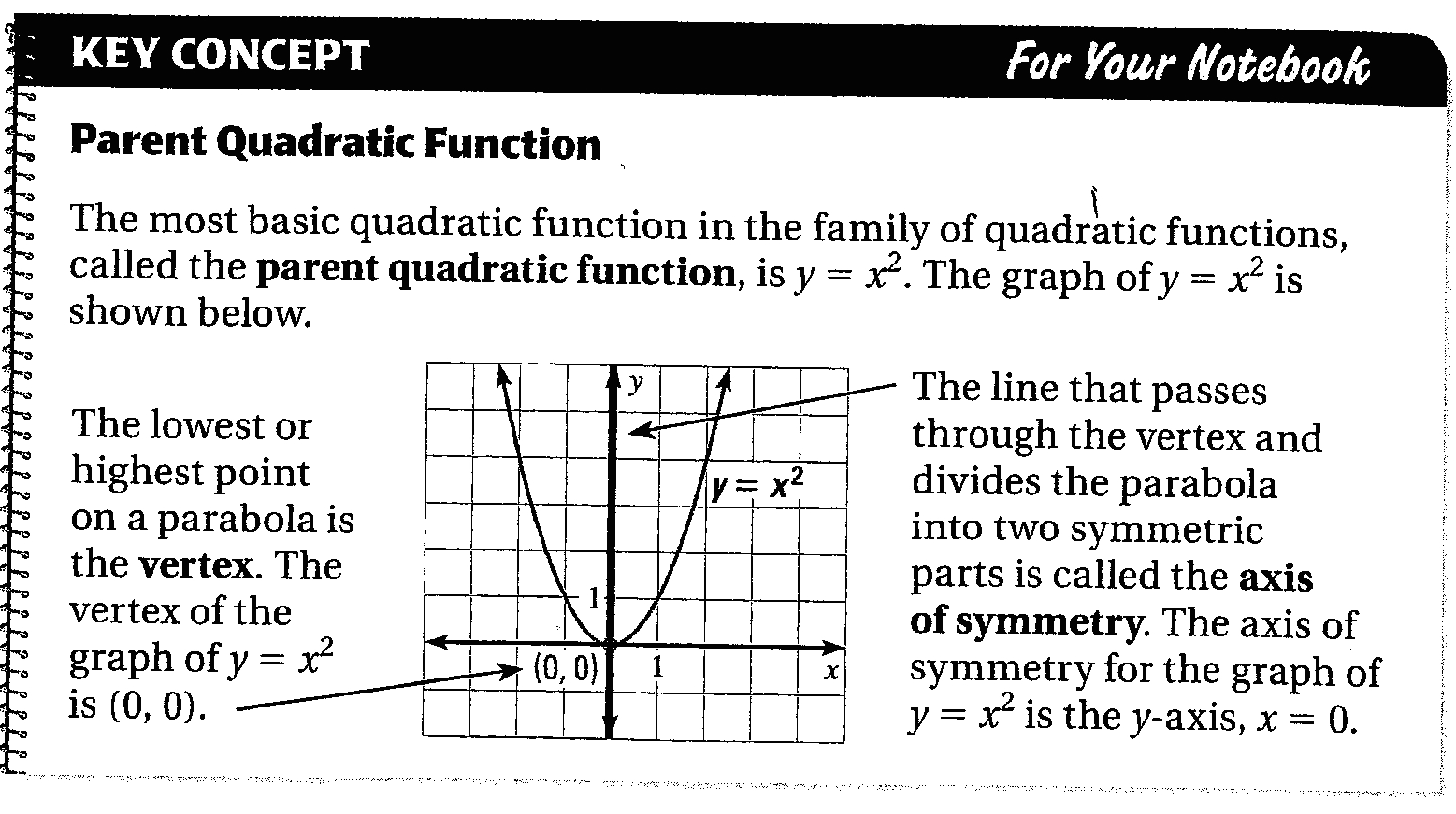
CW & HW#100: Quadratic Equations Review

Geometry

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TP: \_\_\_\_\_\_\_

***Read and annotate the following. FAILURE TO SHOW ALL WORK IN NOTEBOOK WILL RESULT IN A LASALLE***





**TRANSFORMATIONS**

|  |  |  |
| --- | --- | --- |
| y = **a**x2 + c  when |**a**| > 1  Vertical Stretch  Horizontal Shrink | y = **a**x2 + c  when 0 < |**a**| < 1  Vertical Shrink  Horizontal Stretch | y = **a**x2 + c  when **a** < 0  Reflected across the x-axis  (sad face) |

**TRANSFORMATIONS**

|  |  |
| --- | --- |
| y = ax2 + **c**  when **c** > 0  Vertical Shift Up **c** Units | y = ax2 + **c**  when **c** < 0  Vertical Shift Down **c** units |

**IN YOUR NOTEBOOK**

**1. VANG THE FOLLOWING QUADRATIC FUNCTION**

y = - x2 – 4

REQUIRED

VERBAL – axis of symmetry, vertex (max or min), y-intercept, x-intercept(s)

ANALYTICAL – axis of symmetry, vertex, y-intercept, x-intercepts(s)

NUMERICAL – At least 5 points, label vertex, y-intercept, x intercept

GRAPHICAL – label axis of symmetry, vertex (max or min), y-intercept, x-intercept(s)

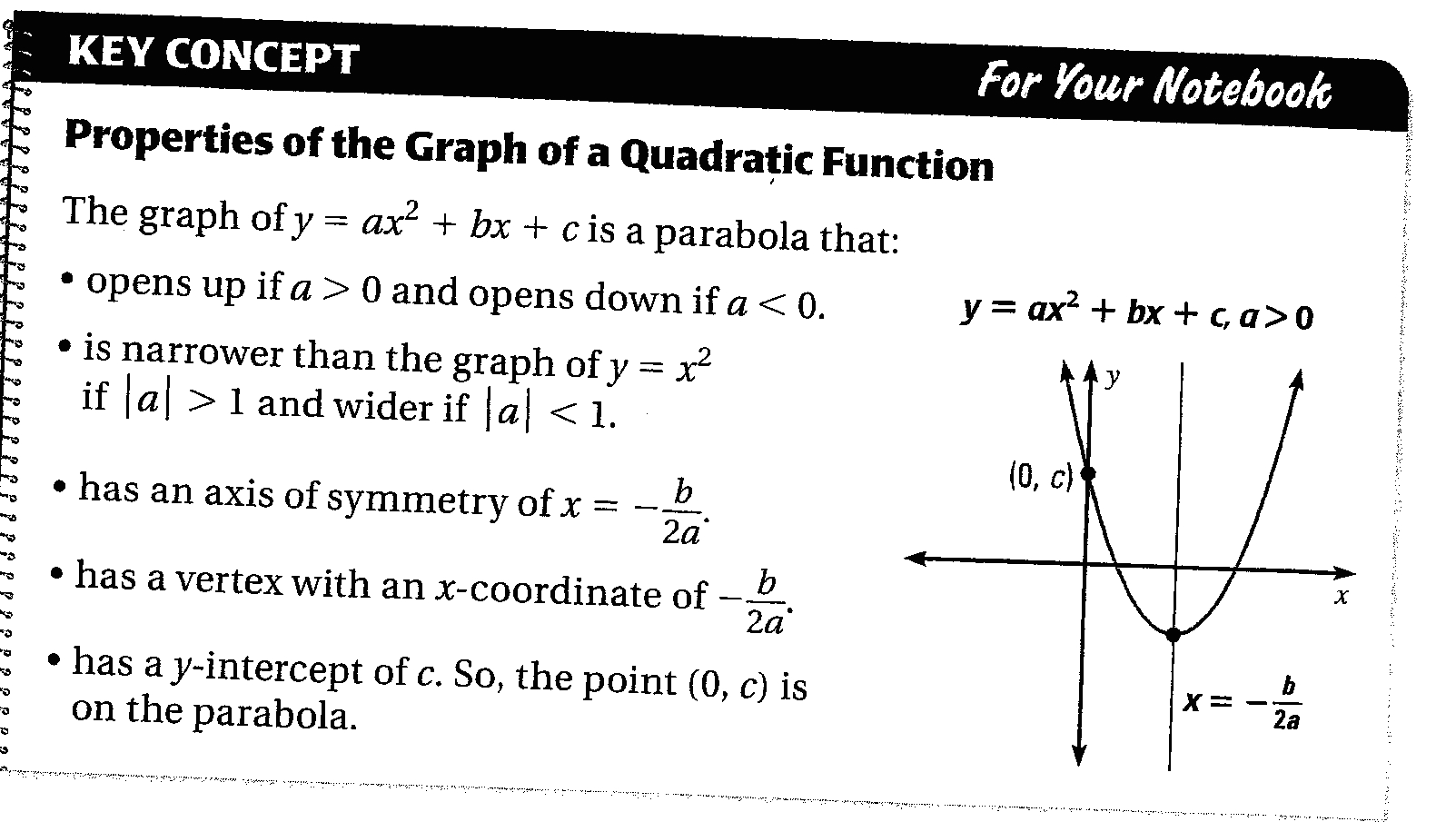
**IN YOUR NOTEBOOK**

**DESCRIBE THE TRANSFORMATIONS TO THE PARENT FUNCTION IN EACH EQUATION**

2.

3.

4. DESCRIBE THE TRANSFORMATION IF WERE CHANGED TO



**IN YOUR NOTEBOOK**

**5. VANG THE FOLLOWING QUADRATIC FUNCTION**

y = -2x2 + 12x – 7

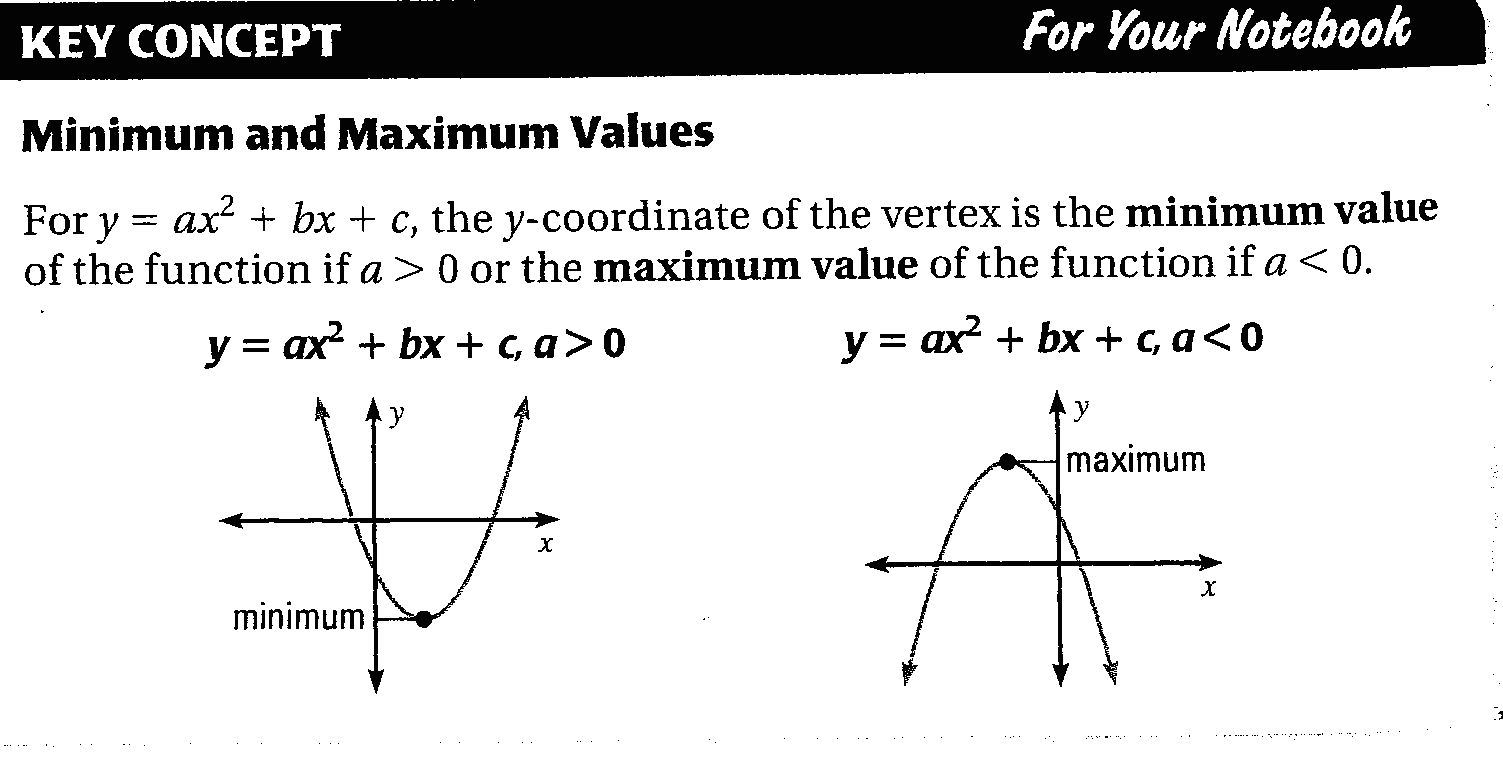
REQUIRED

VERBAL – axis of symmetry, vertex (max or min), y-intercept, x-intercept(s)

ANALYTICAL – axis of symmetry, vertex, y-intercept, x-intercepts(s)

NUMERICAL – At least 5 points, label vertex, y-intercept, x intercept

GRAPHICAL – label axis of symmetry, vertex (max or min), y-intercept, x-intercept(s)



**Is it possible to get an example in here for #6, 7?**

**IN YOUR NOTEBOOK**

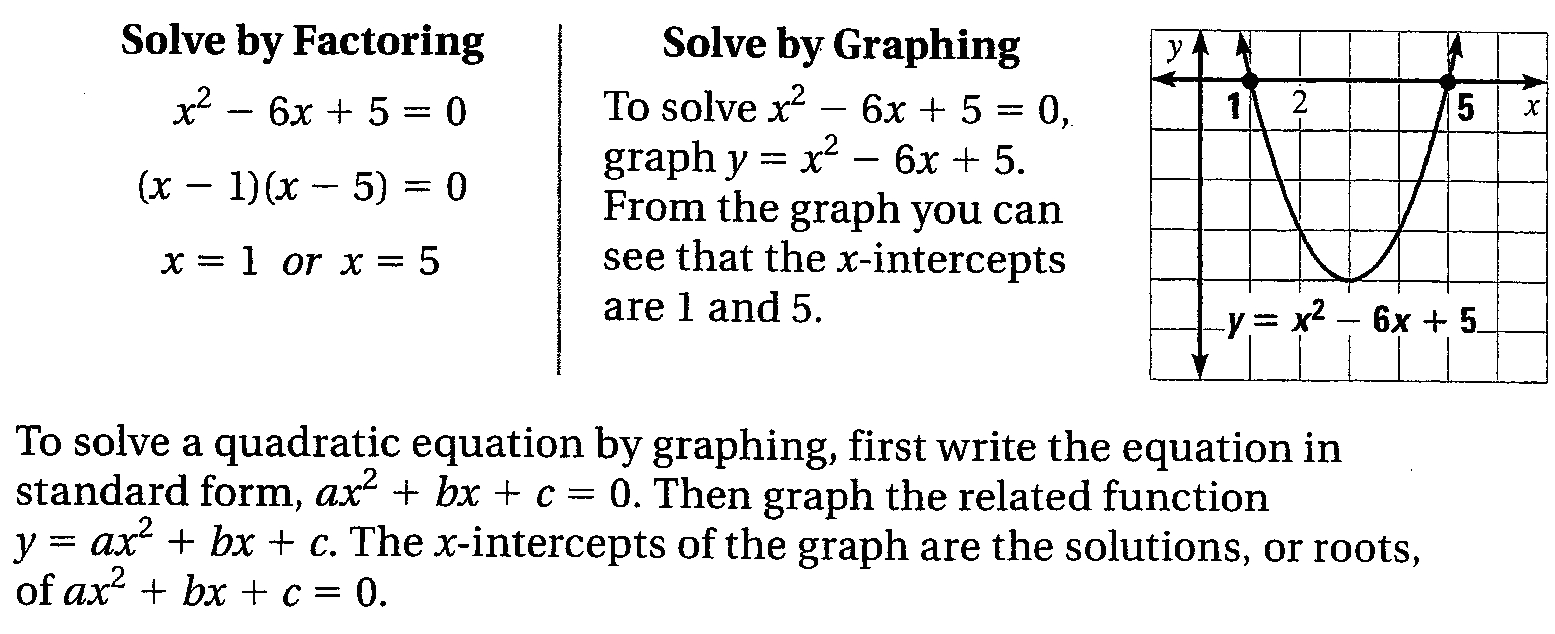
**WRITE IF THE FUNCTION HAS A MAXIMUM OR A MINIMUM AND SOLVE FOR THE MAXIMUM OR MINIMUM.**

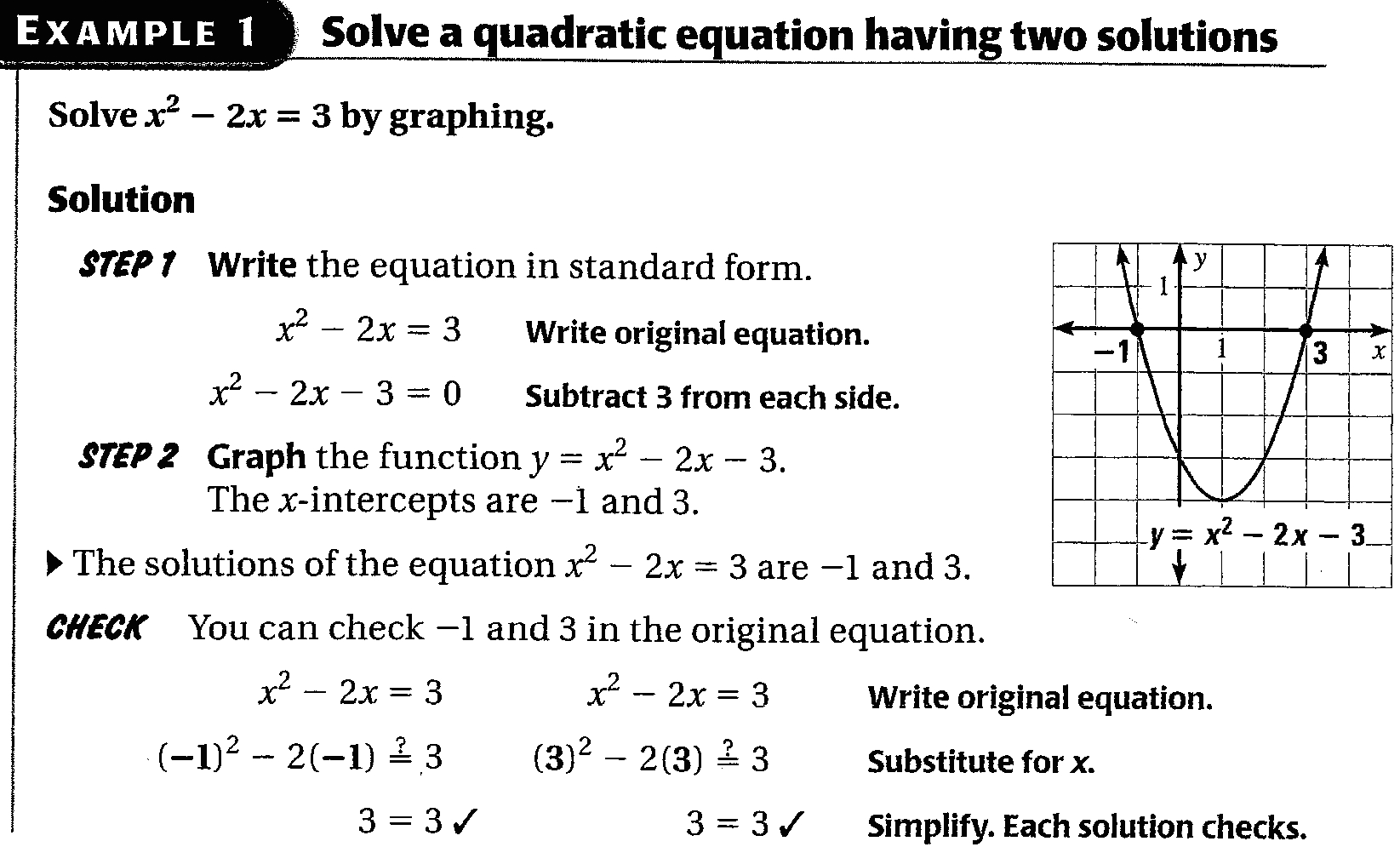
6. y = -3x2 – 12x + 10

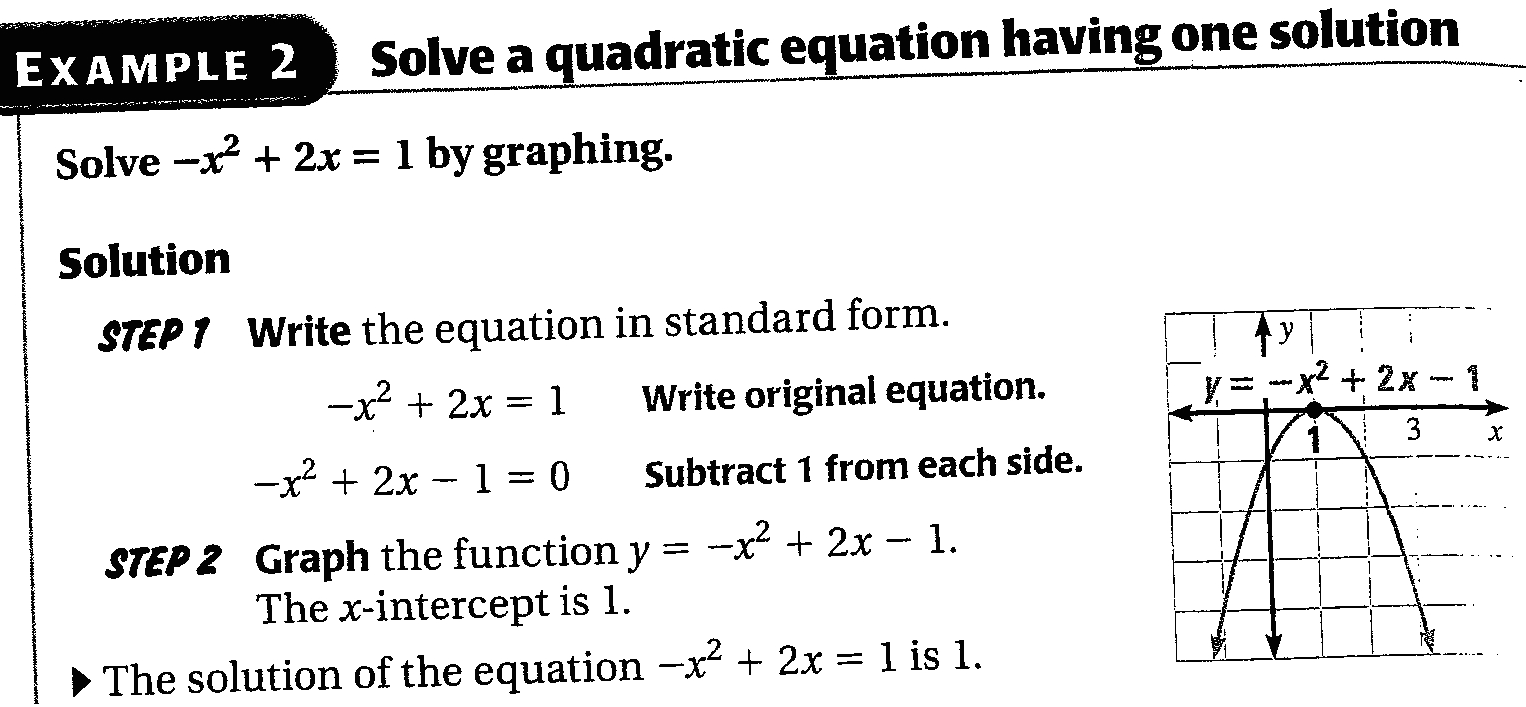
7. y = 6x2 + 18x + 13

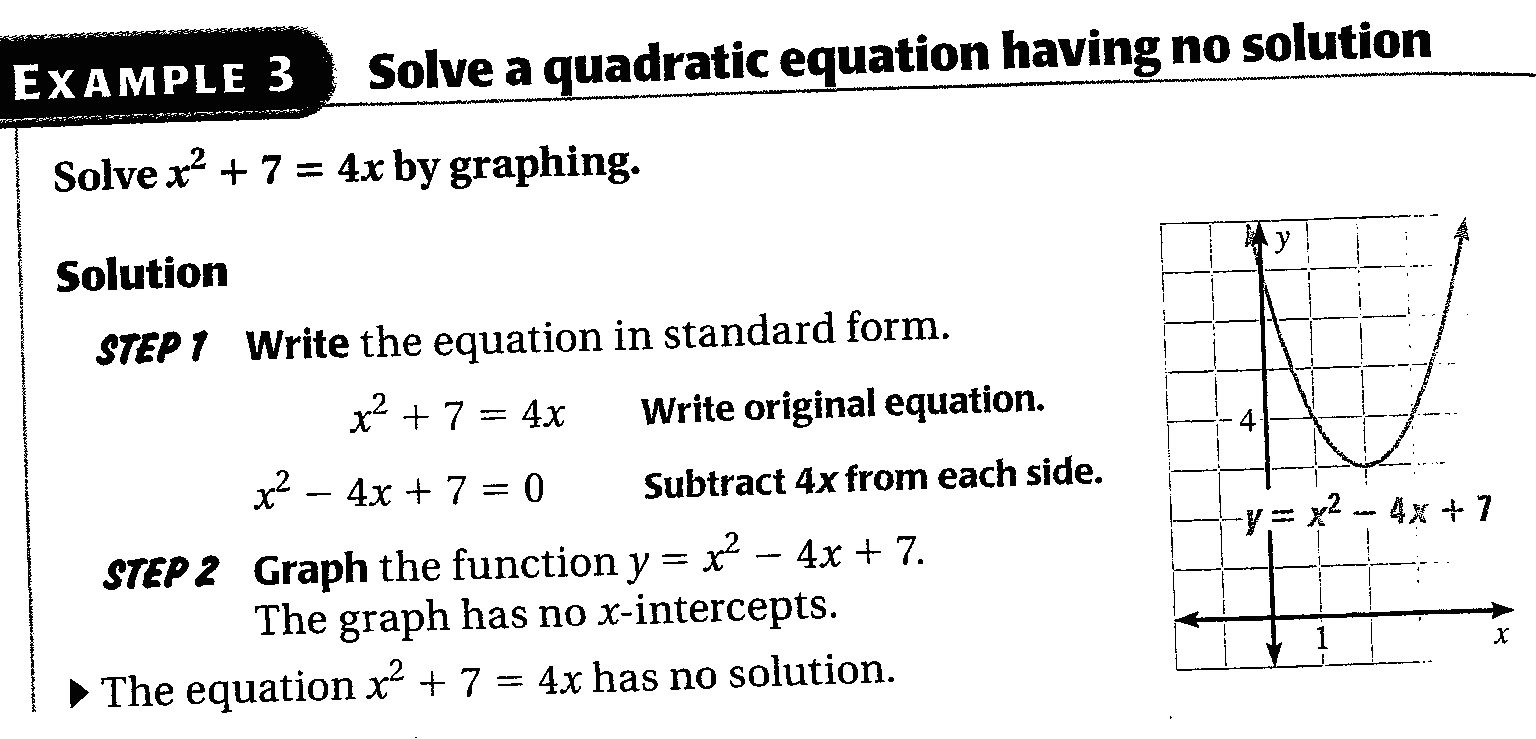
**How do we solve quadratic equations?**

When solving a quadratic equation, the solutions are called the “roots”, “zeroes” or “solutions”. The solutions are simply the x-intercepts of the quadratic equation. It is possible to have 2, 1, or 0 solutions, depending on where or if your parabola crosses the x-axis. See the examples below.









**IN YOUR NOTEBOOK**

**8.** **VANG THE FOLLOWING QUADRATIC FUNCTION**

y = x2 - 6x + 8

REQUIRED

VERBAL – axis of symmetry, vertex (max or min), y-intercept, x-intercept(s)

ANALYTICAL – axis of symmetry, vertex, y-intercept, x-intercepts(s) (factor)

NUMERICAL – At least 5 points, label vertex, y-intercept, x intercept

GRAPHICAL – label axis of symmetry, vertex (max or min), y-intercept, x-intercept(s)

**9. FIND THE SOLUTIONS BY GRAPHING THE FOLLOWING EQUATIONS AND SKETCH THE GRAPH**

1. x2 + x = -1
2. -x2 + 6x = 9

**TWO WAYS TO FIND THE SOLUTIONS (X-INTERCEPTS) WITH YOUR GRAPHING CALCULATOR**

USING THE TABLE

* Get to the TABLE by pressing 2ND then GRAPH
* Scroll down the table by using the up and down arrow keys
* Easier method but does not always display the x-intercepts

FINDING THE ZEROES

* Get to CALC by pressing 2ND then TRACE , then press 2 (Zeroes)
* You place the cursor to the left of an x-intercept in LEFT BOUND, HIT ENTER
* You place the cursor to the right of the same x-intercept in RIGHT BOUND, HIT ENTER
* You place the cursor as close to the x-intercept as you can, HIT ENTER